

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A recording method for recording on a recording medium, comprising the steps of:

(a) positioning a sensor in-at a one edge side first end point in a movement direction of said sensor, said sensor being capable of performing a substantially linear movement from said first end point to a second end point and from said second end point back to said first end point;

(b) carrying said recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) after bringing said sensor in a state in which said sensor does not detect said recording medium lowering a detection sensitivity of said sensor so that it becomes difficult for said sensor to detect said recording medium, and then moving said sensor toward another edge side said second end point opposite to said one edge side until said sensor detects said recording medium;
and

(d) if said sensor, whose detection sensitivity has been lowered, detects said recording medium while said sensor is being moved toward said second end point, then:

obtaining a corner-to-corner leading distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof ~~by which an upper edge of said other edge side, being one of an upper right edge and an upper left edge of said recording medium, leads an upper edge of said one edge side based on~~

~~a carrying distance of said recording medium that is necessary for said sensor that has been brought into the state in which said sensor does not detect said recording medium to again detect the upper edge of said recording medium at said one edge side and~~

a movement distance of ~~when said sensor has moved from said one edge side~~ first end point to a position at which said sensor detected said recording medium and

a virtual carrying distance which is a distance, in said predetermined direction, from said detection position in step (b) to a virtual detection position at which said sensor would detect said recording medium in step (b) if the detection sensibility of said sensor had been lowered; and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner leading distance.

2. (canceled)

3. (canceled)

4. (currently amended) A recording method according to claim 1, wherein:

~~if said sensor that has been brought into the state in which said sensor does not detect said recording medium did, whose detection sensitivity has been lowered, does not detect said recording medium while said sensor is being moved toward said second end point~~~~while moving from said one edge side to said other edge side~~, then said recording medium is simply carried from said detection position by a predetermined amount in said predetermined direction.

5. (currently amended) A recording method according to claim 1, wherein:

~~if said sensor, whose detection sensitivity has been lowered, that has been brought into the state in which said sensor does not detect said recording medium detects said recording medium while said sensor is being moved toward said second end point~~~~while moving from said one edge side to said other edge side~~, then:

a skew angle of said recording medium in a direction intersecting said movement direction of said sensor is obtained based on

~~the carrying distance of said recording medium that is necessary for said sensor that has been brought into the state in which said sensor does not detect said recording medium to again detect the upper edge of said recording medium at said one edge side and~~

~~the said movement distance of when said sensor has moved from said one edge side~~first end point to the position at which said sensor detecteds said recording medium and said virtual carrying distance; and

~~the leadingsaid corner-to-corner distance by which the upper edge of said other edge side,~~
~~being one of the upper right edge and the upper left edge of said recording medium, leads the~~
~~upper edge of said one edge side~~ is obtained based on said skew angle and a width of said
recording medium.

6. (original) A recording method according to claim 1, wherein:

said sensor moves in said movement direction together with a recording head.

7. (original) A recording method according to claim 1, wherein:

said sensor comprises a light-emitting member for emitting light and a light-receiving
member for receiving light emitted by said light-emitting member, and detects said recording
medium based on an output value of said light-receiving member.

8. (original) A recording method according to claim 6, wherein:

said recording head carries out recording with respect to an entire surface of said
recording medium.

9. (currently amended) A recording method for recording on a recording medium,
comprising the steps of:

(a) dividing a movement direction of a sensor into a plurality of sectors and positioning
said sensor in at a one edge side first end point in said movement direction, said sensor being

capable of performing a substantially linear movement from said first end point to a second end point and from said second end point back to said first end point;

(b) carrying said recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) ~~after bringing said sensor in a state in which said sensor does not detect said recording medium~~ lowering a detection sensitivity of said sensor so that it becomes difficult for said sensor to detect said recording medium, and then moving said sensor toward another edge side said second end point ~~opposite to said one edge side until said sensor detects said recording medium;~~
and

(d) if said sensor, whose detection sensitivity has been lowered, detects said recording medium while said sensor is being moved toward said second end point, then:

obtaining a corner-to-corner leading distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof, by which an upper edge of said other edge side, being one of an upper right edge and an upper left edge of said recording medium, leads an upper edge of said one edge side according to which sector, in said movement direction, said sensor detected said recording medium in; and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner ~~leading~~ distance.

10. (canceled)

11. (canceled)

12. (currently amended) A recording method according to claim 9, wherein:

if said sensor ~~that has been brought into the state in which said sensor,~~ whose detection sensitivity has been lowered, does not detect said recording medium while said sensor is being moved toward said second end point~~did not detect said recording medium while moving from said one edge side to said other edge side,~~ then said recording medium is simply carried from said detection position by a predetermined amount in said predetermined direction.

13. (original) A recording method according to claim 9, wherein:

said sensor moves in said movement direction together with a recording head.

14. (original) A recording method according to claim 9, wherein:

said sensor comprises a light-emitting member for emitting light and a light-receiving member for receiving light emitted by said light-emitting member, and detects said recording medium based on an output value of said light-receiving member.

15. (original) A recording method according to claim 13, wherein:

said recording head carries out recording with respect to an entire surface of said recording medium.

16. (currently amended) A recording apparatus for recording on a recording medium, comprising:

a movable sensor for detecting said recording medium, said sensor being capable of performing a substantially linear movement from a first end point to a second end point and from said second end point back to said first end point;

a carrying mechanism for carrying said recording medium in a predetermined direction intersecting a movement direction of said sensor;

wherein;

(a) said sensor is positioned at a one edge side said first end point in said movement direction of said sensor;

(b) said carrying mechanism carries said recording medium in a said predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) a detection sensitivity of said sensor is lowered so that it becomes difficult for said sensor to detect said recording medium after bringing said sensor in a state in which said sensor does not detect said recording medium, and then said sensor is moved toward another edge side said second end point opposite to said one edge side until said sensor detects said recording medium; and

(d) if said sensor, whose detection sensitivity has been lowered, detects said recording medium while said sensor is being moved toward said second end point, then:

a corner-to-corner leading distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof by which an upper edge of said other edge side, being one of an upper right edge and an upper left edge of said recording medium, leads an upper edge of said one edge side is obtained based on

a carrying distance of said recording medium that is necessary for said sensor that has been brought into the state in which said sensor does not detect said recording medium to again detect the upper edge of said recording medium at said one edge side and

a movement distance of when said sensor has moved from said one edge side first end point to a position at which said sensor detects said recording medium and

a virtual carrying distance which is a distance, in said predetermined direction, from said detection position in item (b) to a virtual detection position at which said sensor would detect

said recording medium in item (b) if the detection sensibility of said sensor had been lowered;

and

said carrying mechanism carries said recording medium in said predetermined direction
by an amount that corresponds to said corner-to-corner ~~leading~~ distance.

17. (currently amended) A recording apparatus for recording on a recording medium,
comprising:

a movable sensor for detecting said recording medium, said sensor being capable of
performing a substantially linear movement from a first end point to a second end point and from
said second end point back to said first end point;

a carrying mechanism for carrying said recording medium in a predetermined direction
intersecting a movement direction of said sensor;

wherein;

(a) said movement direction of said sensor is divided into a plurality of sectors, and said
sensor is positioned ~~in at a one edge side~~ said first end point in said movement direction;

(b) said carrying mechanism carries said recording medium in ~~a~~ said predetermined
direction up to a detection position which is a position of said recording medium where said
sensor detects said recording medium when said sensor is positioned at said first end point, said
recording medium having at least a leading edge which is the foremost edge in said
predetermined direction;

(c) a detection sensitivity of said sensor is lowered so that it becomes difficult for said sensor to detect said recording medium after bringing said sensor in a state in which said sensor does not detect said recording medium, and then said sensor is moved toward another edge side said second end point opposite to said one edge side until said sensor detects said recording medium; and

(d) if said sensor, whose detection sensitivity has been lowered, detects said recording medium while said sensor is being moved toward said second end point, then:

a corner-to-corner leading distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof by which an upper edge of said other edge side, being one of an upper right edge and an upper left edge of said recording medium, leads an upper edge of said one edge side is obtained, according to which sector, in said movement direction, said sensor detected said recording medium in; and

said carrying mechanism carries said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner leading distance.

18. (currently amended) A computer-readable medium for causing a recording apparatus to operate, comprising:

(a) a code for positioning a sensor in at a one edge side first end point in a movement direction of said sensor, said sensor being capable of performing a substantially linear movement

from said first end point to a second end point and from said second end point back to said first end point;

(b) a code for carrying said a recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) a code for lowering a detection sensitivity of said sensor so that it becomes difficult for said sensor to detect said recording medium, and then moving said sensor toward said second end point~~another edge side opposite to said one edge side until said sensor detects said recording medium after bringing said sensor in a state in which said sensor does not detect said recording medium; and~~

(d) a code for:

obtaining a corner-to-corner leading distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof~~by which an upper edge of said other edge side, being one of an upper right edge and an upper left edge of said recording medium, leads an upper edge of said one edge side based on~~

~~a carrying distance of said recording medium that is necessary for said sensor that has been brought into the state in which said sensor does not detect said recording medium to again detect the upper edge of said recording medium at said one edge side and~~

~~a movement distance of when said sensor has moved from said one edge side~~first end point to a position at which said sensor detecteds said recording medium and

a virtual carrying distance which is a distance, in said predetermined direction, from said detection position in code (b) to a virtual detection position at which said sensor would detect said recording medium in code (b) if the detection sensibility of said sensor had been lowered;
and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner ~~leading~~ distance

if said sensor, whose detection sensitivity has been lowered, detects said recording medium while said sensor is being moved toward said second end point.

19. (currently amended) A computer-readable medium for causing a recording apparatus to operate, comprising:

(a) a code for dividing a movement direction of a sensor into a plurality of sectors and positioning said sensor in-at a one edge sidefirst end point in said movement direction, said sensor being capable of performing a substantially linear movement from said first end point to a second end point and from said second end point back to said first end point;

(b) a code for carrying ~~said~~ a recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) a code for lowering a detection sensitivity of said sensor so that it becomes difficult for said sensor to detect said recording medium, and then moving said sensor toward said second end point~~another edge side opposite to said one edge side until said sensor detects said recording medium after bringing said sensor in a state in which said sensor does not detect said recording medium; and~~

(d) a code for:

obtaining a corner-to-corner leading distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof~~by which an upper edge of said other edge side, being one of an upper right edge and an upper left edge of said recording medium, leads an upper edge of said one edge side according to which sector, in said movement direction, said sensor detected said recording medium in; and~~

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner leading distance

if said sensor, whose detection sensitivity has been lowered, detects said recording medium while said sensor is being moved toward said second end point.

20. (new) A recording method for recording on a recording medium, comprising the steps of:

(a) positioning a sensor at a first end point in a movement direction of said sensor, said sensor being capable of performing a substantially linear movement from said first end point to a second end point and from said second end point back to said first end point;

(b) carrying said recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) carrying said recording medium by a predetermined opposite-carrying amount from said detection position in a direction opposite to said predetermined direction, and then moving said sensor toward said second end point; and

(d) if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point, then:

obtaining a corner-to-corner distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording

medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof based on

a movement distance from said first end point to a position at which said sensor detected said recording medium and

said predetermined opposite-carrying amount by which said recording medium is carried in said opposite direction; and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner distance.

21. (new) A recording method according to claim 20, wherein:

if said sensor, after said recording medium has been carried in said opposite direction, does not detect said recording medium while said sensor is being moved toward said second end point, then said recording medium is simply carried from said detection position by a predetermined amount in said predetermined direction.

22. (new) A recording method according to claim 20, wherein:

if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point, then:

a skew angle of said recording medium in a direction intersecting said movement direction of said sensor is obtained based on

said movement distance from said first end point to the position at which said sensor detected said recording medium and

said predetermined opposite-carrying amount; and

said corner-to-corner distance is obtained based on said skew angle and a width of said recording medium.

23. (new) A recording method according to claim 20, wherein:

said sensor moves in said movement direction together with a recording head.

24. (new) A recording method according to claim 20, wherein:

said sensor comprises a light-emitting member for emitting light and a light-receiving member for receiving light emitted by said light-emitting member, and detects said recording medium based on an output value of said light-receiving member.

25. (new) A recording method according to claim 23, wherein:

said recording head carries out recording with respect to an entire surface of said recording medium.

26. (new) A recording method for recording on a recording medium, comprising the steps of:

(a) dividing a movement direction of a sensor into a plurality of sectors and positioning said sensor at a first end point in said movement direction, said sensor being capable of performing a substantially linear movement from said first end point to a second end point and from said second end point back to said first end point;

(b) carrying said recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) carrying said recording medium by a predetermined opposite-carrying amount from said detection position in a direction opposite to said predetermined direction, and then moving said sensor toward said second end point; and

(d) if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point, then:

obtaining a corner-to-corner distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof, according to which sector said sensor detected said recording medium in; and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner distance.

27. (new) A recording method according to claim 26, wherein:

if said sensor, after said recording medium has been carried in said opposite direction, does not detect said recording medium while said sensor is being moved toward said second end point, then said recording medium is simply carried from said detection position by a predetermined amount in said predetermined direction.

28. (new) A recording method according to claim 26, wherein:

said sensor moves in said movement direction together with a recording head.

29. (new) A recording method according to claim 26, wherein:

said sensor comprises a light-emitting member for emitting light and a light-receiving member for receiving light emitted by said light-emitting member, and detects said recording medium based on an output value of said light-receiving member.

30. (new) A recording method according to claim 28, wherein:

said recording head carries out recording with respect to an entire surface of said recording medium.

31. (new) A recording apparatus for recording on a recording medium, comprising:
a movable sensor for detecting said recording medium, said sensor being capable of performing a substantially linear movement from a first end point to a second end point and from said second end point back to said first end point;

a carrying mechanism for carrying said recording medium in a predetermined direction intersecting a movement direction of said sensor;

wherein;

(a) said sensor is positioned at said first end point in said movement direction of said sensor;

(b) said carrying mechanism carries said recording medium in said predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) said recording medium is carried by a predetermined opposite-carrying amount from said detection position in a direction opposite to said predetermined direction, and then said sensor is moved toward said second end point; and

(d) if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point, then:

a corner-to-corner distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof is obtained based on

a movement distance from said first end point to a position at which said sensor detected said recording medium and

said predetermined opposite-carrying amount by which said recording medium is carried in said opposite direction; and

said carrying mechanism carries said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner distance.

32. (new) A recording apparatus for recording on a recording medium, comprising:
a movable sensor for detecting said recording medium, said sensor being capable of performing a substantially linear movement from a first end point to a second end point and from said second end point back to said first end point;

a carrying mechanism for carrying said recording medium in a predetermined direction intersecting a movement direction of said sensor;

wherein;

(a) said movement direction of said sensor is divided into a plurality of sectors, and said sensor is positioned at said first end point in said movement direction;

(b) said carrying mechanism carries said recording medium in said predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) said recording medium is carried by a predetermined opposite-carrying amount from said detection position in a direction opposite to said predetermined direction, and then said sensor is moved toward said second end point; and

(d) if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point, then:

a corner-to-corner distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof is obtained, according to which sector said sensor detected said recording medium in; and

said carrying mechanism carries said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner distance.

33. (new) A computer-readable medium for causing a recording apparatus to operate, comprising:

(a) a code for positioning a sensor at a first end point in a movement direction of said sensor, said sensor being capable of performing a substantially linear first end point;

(b) a code for carrying a recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) a code for carrying said recording medium by a predetermined opposite-carrying amount from said detection position in a direction opposite to said predetermined direction, and then moving said sensor toward said second end point; and

(d) a code for:

obtaining a corner-to-corner distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof, and a second corner of said recording medium formed by said leading edge of said recording medium and a second side edge thereof based on

a movement distance from said first end point to a position at which said sensor detected said recording medium and

said predetermined opposite-carrying amount by which said recording medium is carried in said opposite direction; and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner distance

if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point.

34. (new) A computer-readable medium for causing a recording apparatus to operate, comprising:

(a) a code for dividing a movement direction of a sensor into a plurality of sectors and positioning said sensor at a first end point in said movement direction, said sensor being capable of performing a substantially linear movement from said first end point to a second end point and from said second end point back to said first end point;

(b) a code for carrying a recording medium in a predetermined direction up to a detection position which is a position of said recording medium where said sensor detects said recording medium when said sensor is positioned at said first end point, said predetermined direction being a direction intersecting said movement direction of said sensor, and said recording medium having at least a leading edge which is the foremost edge in said predetermined direction;

(c) a code for carrying said recording medium by a predetermined opposite-carrying amount from said detection position in a direction opposite to said predetermined direction, and then moving said sensor toward said second end point; and

(d) a code for:

obtaining a corner-to-corner distance which is a distance, in said predetermined direction, between a first corner of said recording medium formed by said leading edge of said recording medium and a first side edge thereof, and a second corner of said recording medium formed by

said leading edge of said recording medium and a second side edge thereof, according to which sector said sensor detected said recording medium in; and

carrying said recording medium in said predetermined direction by an amount that corresponds to said corner-to-corner distance

if said sensor, after said recording medium has been carried in said opposite direction, detects said recording medium while said sensor is being moved toward said second end point.